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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,866	01/08/2004	Juha Virtanen	2534-00076	6124
26753	7590	09/14/2005	EXAMINER	
ANDRUS, SCEALES, STARKE & SAWALL, LLP 100 EAST WISCONSIN AVENUE, SUITE 1100 MILWAUKEE, WI 53202			KAHELIN, MICHAEL WILLIAM	
			ART UNIT	PAPER NUMBER
			3762	

DATE MAILED: 09/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/753,866

Applicant(s)

VIRTANEN, JUHA

Examiner

Michael Kahelin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 2 and 12-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-11 and 16-18 is/are rejected.
- 7) ☒ Claim(s) 5 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 08122005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Claims 12-15 are withdrawn from further consideration pursuant to 37 CFR 1.142(b); as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 7/11/2005.
2. Applicant's election with traverse of claims 1-11 and 16-18 in the reply filed on 7/11/2005 is acknowledged. The traversal is on the ground(s) that both the method and the apparatus claims are directed to the same invention, namely "grounding in a system for ECG monitoring". This is not found persuasive because there is no positive recitation of an ECG monitoring system in the apparatus claim, merely a statement of intended use. In addition, the grounding system could be used for a different method, such as grounding a technician in a laboratory or clinical setting.

The requirement is still deemed proper and is therefore made FINAL.

***Priority***

3. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in EPO on 1/9/2003. It is noted, however, that applicant has not filed a certified copy of the European application as required by 35 U.S.C. 119(b).

***Information Disclosure Statement***

4. The information disclosure statement (IDS) submitted on 8/12/2005 is noted.

The submission is in compliance with the provisions of 37 CFR 1.97 and 1.98.

Accordingly, the information disclosure statement is being considered by the examiner.

***Specification***

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract should not contain the phrase "the present invention discloses", "the" should be inserted between "using" and "same", "a" should be inserted between "If" and "5-lead", and "a" should be inserted between "through" and "current".

***Claim Objections***

6. Claims 5 and 11 are objected to because of the following informalities: "are alternatively" should read "is alternatively" in claim 5, and "a analog" should read "an analog" in claim 11. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1, 3-11 and 16-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. In regards to claim 1, it is unclear which elements make up the claimed invention. For example, is the applicant only positively reciting the grounding arrangement, or the ECG monitoring system, having electrodes in combination with the grounding arrangement? The examiner has interpreted the claim as being "a grounding arrangement" with only a "current limiting circuit exhibiting non-linear voltage-current characteristics", with the ECG monitoring circuit not being positively recited, but only functionally recited.

10. In regards to claim 5, "the current limiting circuit" is vague because there is no antecedent basis for this element. In addition, the claim is vague because it is unclear what elements are being claimed. The examiner has interpreted the claim as being a "grounding arrangement" with a "current limiting circuit [which] consists of passive components, at least one of which exhibits non-linear voltage-current characteristics".

11. Claims 1, 4, 5, 7, 8, 17, and 18 provide for the use of the invention, but, since the claim does not set forth any steps involved in the method/process, it is unclear what

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method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced. It is unclear to what structural limitations the functional limitations refer.

12. Claim 9 is vague because "a detecting circuit" is lacking a structural relationship to the other elements.

***Claim Rejections - 35 USC § 102***

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1 and 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kroll et al. (4,890,630).

15. In regards to claim 1, Kroll et al. disclose a grounding arrangement in an ECG monitoring system in which the electrodes are grounded through a current limiting circuit with non-linear voltage-current characteristics (Fig. 4, elements 61-64). Please note that the examiner is interpreting a grounding arrangement as any circuit because the ground point, especially in isolated medical electronics, is a somewhat arbitrary point. In other words, almost any voltage value is a "ground" value. Also, the examiner is interpreting the diodes (61-64) to be nonlinear and current-limiting components because they only allow current to flow in one direction and are non-linear in the voltage range directly around the breakdown voltage.

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16. In regards to claim 6, there are individual current limiting circuits for each connector (60-62, 64).

17. In regards to claims 7 and 8, a current limiting circuit is used for multiple and all connectors (63).

18. Claims 1, 5, 6-8 and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Miller (2,976,462).

19. In regards to claims 1 and 5, Miller discloses a grounding configuration in an ECG system (col. 4, line 24) consisting of passive components (Fig. 3) and having at least one component with nonlinear voltage-current characteristics (S, S', 17, 17', C, and C').

20. In regards to claims 6 and 16, there are individual current limiting circuits for each connector (1 to S to ground, 3 to S' to ground).

21. In regards to claims 7, 8, 17 and 18, a single current limiting circuit is used for more than one and all connectors. Please note that, in this case, the examiner is interpreting the entire circuit shown in Figure 3 as the current limiting circuit.

### ***Claim Rejections - 35 USC § 103***

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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23. Claims 3, 4, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kroll et al. in view of Dukes (5,042,498). Kroll et al. disclose the essential features of the claimed invention except for including a current limited voltage source, means for detecting the addition of an electrode with the current limiting circuit, and a comparator detection circuit. Dukes teaches of an ECG system with a grounding arrangement which includes a current-limited voltage source (62) to protect the patient from high currents, a means for detecting the addition of an electrode (44) to notify the patient or clinician of a detached electrode, and a comparator detection circuit (68) to provide a detection circuit with inexpensive and well-known components. Please note that the examiner is interpreting the "off" condition of the LED to indicate the addition of a new electrode. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kroll's invention by including a current-limited voltage source to protect the patient from high currents, a means for detecting the addition of an electrode to notify the patient or clinician of a detached electrode, and a comparator detection circuit to provide a detection circuit with inexpensive and well-known components.

24. Claims 3, 4, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kroll et al. in view of Manes (4,848,355). Kroll et al. disclose the essential features of the claimed invention except for including a current limited voltage source, means for detecting the addition of an electrode with the current limiting circuit, and an analog-to-digital converter detection circuit. Manes teaches of an ECG system with a grounding arrangement which includes a current-limited voltage source (26 and col. 3, line 10) to



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protect the patient from high currents, a means for detecting the addition of an electrode (col. 5, line 30) to notify the patient or clinician of a detached electrode, and an analog-to-digital converter (col. 5, line 28) to allow digital manipulation of signals by a microprocessor. Please note that the examiner is interpreting the indication of the electrode as being within the two resistance thresholds (RMIN and RMAX) as being the indication of the addition of a new electrode. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a current-limited voltage source to protect the patient from high currents, a means for detecting the addition of an electrode to notify the patient or clinician of a detached electrode, and an analog-to-digital converter detection circuit to allow digital manipulation of signals by a microprocessor.

### ***Conclusion***

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Other examples of current-limiting grounding circuits are provided.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kahelin whose telephone number is (571)272-8688. The examiner can normally be reached on M-F, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Sykes can be reached on (571)272-4955. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MWK

A handwritten signature in black ink, appearing to read 'Rinaldi I. Rada', with a long horizontal flourish extending to the right.

Rinaldi I. Rada  
Supervisory Patent Examiner  
Group 3700